

## GENERAL NOTES

### DRILLING & SAMPLING SYMBOLS:

SS: Split Spoon - 1 3/8" I.D., 2" O.D., unless otherwise noted  
 ST: Thin-Walled Tube - 3" O.D., Unless otherwise noted  
 PA: Power Auger  
 HA: Hand Auger  
 DB: Diamond Bit - 4", N, B  
 AU: Auger Sample  
 HS: Hollow Stem Auger

PS: Piston Sample  
 WS: Wash Sample  
 FT: Fish Tail Bit  
 RB: Rock Bit  
 BS: Bulk Sample  
 PM: Pressuremeter  
 DC: Dutch Cone  
 WB: Wash Bore

Standard "N" Penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2 inch OD split spoon, except where noted.

### WATER LEVEL MEASUREMENT SYMBOLS:

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of ground water levels is not possible with only short term observations.

### DESCRIPTIVE SOIL CLASSIFICATION:

Soil Classification is based on the Unified Soil Classification System and ASTM Designations D-2487 and D-2488. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; they are described as: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are described as: clays, if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse grained soils are defined on the basis of their relative in-place density and fine grained soils on the basis of their consistency. Example: Lean clay with sand, trace gravel, stiff (CL); silty sand, trace gravel, medium dense (SM).

### CONSISTENCY OF FINE-GRAINED SOILS:      RELATIVE DENSITY OF COARSE-GRAINED SOILS

Unconfined Compressive Strength, $Q_u$ , tsf	N-Blows/ft.	Consistency
< .25	Below 2	Very Soft
.25 - .50	2-4	Soft
.50 - 1.0	4-8	Medium Stiff
1.0 - 2.0	8-15	Stiff
2.0 - 4.0	15-30	Very Stiff
4.0 - 8.0	30-50	Hard
> 8.0	> 50	Very Hard

N-Blows/ft.	Relative Density
0-3	Very Loose
4-9	Loose
10-29	Medium Dense
30-49	Dense
50-80	Very Dense
80+	Extremely Dense

### RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) (of Components Also Present in Sample)	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

### RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) (of Components Also Present in Sample)	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

### GRAIN SIZE TERMINOLOGY

Major Component Of Sample	Size Range
Boulders	Over 12 in. (300mm)
Cobbles	12 in. To 3 in. (300mm to 75mm)
Gravel	3 in. To #4 sieve (75mm to 4.75mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)

## SOIL CLASSIFICATION CHART

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

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MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS		
			GRAPH	LETTER			
COARSE GRAINED SOILS  MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS  MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS  (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES		
		GRAVELS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES		
				GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES		
	SAND AND SANDY SOILS  MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS  (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES		
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES		
		SANDS WITH FINES  (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES		
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES		
			FINE GRAINED SOILS  MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS  LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
						CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY					
SILTS AND CLAYS  LIQUID LIMIT GREATER THAN 50		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS			
		CH		INORGANIC CLAYS OF HIGH PLASTICITY			
		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS				
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS		



001062



Professional Service Industries, Inc.  
665 Tollgate Road, Unit H  
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Telephone: 847-931-7110  
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## LOG OF BORING B-1

Sheet 1 of 1

PSI Job No.: 042-55077  
Project: Lot 2 Oakhurst Drive  
Location: Oakhurst Drive to south of New York St.  
Aurora, Illinois  
Client: Partners in Development

Drilling Method: 2.25" Hollow Stem Augers  
Sampling Method: Split-Spoon Sampling  
Hammer Type: Hydraulic  
Drill Rig Type: Mobil Drill  
Backfill Method: Auger Cuttings

## WATER LEVELS

▽ During Drilling ft  
▽ At Completion ft  
▽ After 24 Hours ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	Hand Penetrometer Qp (tsf)	SPT Blows per 6-inch N-values	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft @				Additional Remarks
						Surface Elev.:      ft Existing Surface									
						X Moisture      PL 1      25      50 + LL STRENGTH, tsf ▲ Qu      * Qp      0      2.0      4.0									
0	0					10 inches of black clayey TOPSOIL									
				1	14	FILL: brown silty CLAY, trace sand and gravel	FILL		8/8/8 N=16	14					
				2	14		FILL		4/5/6 N=11	14					
	5			3	14	FILL: Dark gray to black silty CLAY, trace organics, sand and gravel	FILL		3/3/3 N=6	19					
				4	16	Gray silty CLAY, trace sand gravel, stiff	CL	1.5	3/5/6 N=11	18					
	10														
				5	18	Brown silty CLAY, trace sand and gravel, stiff	CL	4.0	4/6/9 N=15	17					*
	15														
				6	18	Gray silty CLAY, trace sand gravel, stiff	CL	2.0	4/6/7 N=13	16					*
	20					END OF BORING AT 20 FEET No groundwater was observed to collect during the drilling operations.									

Completion Depth: 20.0 ft  
Date Boring Started: 12/13/05  
Driller: MS  
Assistant Driller: JJJ

## Sample Types:

Auger Cutting  
 Split-Spoon

Shelby Tube  
 Hand Auger

Remarks:

001063



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## LOG OF BORING B-2

Sheet 1 of 1

PSI Job No.: 042-55077  
Project: Lot 2 Oakhurst Drive  
Location: Oakhurst Drive to south of New York St.  
Aurora, Illinois  
Client: Partners in Development

Drilling Method: 2.25" Hollow Stem Augers  
Sampling Method: Split-Spoon Sampling  
Hammer Type: Hydraulic  
Drill Rig Type: Mobil Drill  
Backfill Method: Auger Cuttings

## WATER LEVELS

▽ During Drilling ft  
▽ At Completion ft  
▽ After 24 Hours ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	Hand Penetrometer Qp (tsf)	SPT Blows per 6-inch N-values	Moisture, %	STANDARD PENETRATION TEST DATA		Additional Remarks
											N in blows/ft	Strength, tsf	
						Surface Elev.: ft Existing Surface							
0						6 inches of black clayey TOPSOIL							
				1	16	FILL: black to gray silty CLAY, trace sand and gravel	FILL		10/10/11 N=21	14			
				2	16	FILL: Dark brown silty CLAY, trace sand and gravel	FILL		6/8/9 N=17	18			
5				3	8	Brown silty CLAY, trace sand and gravel, stiff to very stiff	CL	3.0	6/7/9 N=16	16		*	
				4	18		CL	4.5	7/10/12 N=22	17			>>*
10				5	18	Gray silty CLAY, trace sand gravel, stiff to very stiff	CL	4.5	9/10/11 N=21	16			>>*
15				6	18		CL	4.5	9/9/10 N=19	16			>>*
20						END OF BORING AT 20 FEET No groundwater was observed to collect during the drilling operations.							

Completion Depth: 20.0 ft  
Date Boring Started: 12/13/05  
Driller: MS  
Assistant Driller: III

## Sample Types:

☒ Auger Cutting  
☒ Split-Spoon  
☐ Shelby Tube  
☒ Hand Auger

Remarks:

001064



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## LOG OF BORING B-3

Sheet 1 of 1

PSI Job No.: 042-55077  
Project: Lot 2 Oakhurst Drive  
Location: Oakhurst Drive to south of New York St.  
Aurora, Illinois  
Client: Partners in Development

Drilling Method: 2.25" Hollow Stem Augers  
Sampling Method: Split-Spoon Sampling  
Hammer Type: Hydraulic  
Drill Rig Type: Mobil Drill  
Backfill Method: Auger Cuttings

## WATER LEVELS

▽ During Drilling ft  
▼ At Completion ft  
▽ After 24 Hours ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	Hand Penetrometer Qp (tsf)	SPT Blows per 6-Inch N-values	Moisture, %	STANDARD PENETRATION TEST DATA		Additional Remarks
											N in blows/ft	PL	
						Surface Elev.: ft Existing Surface					STRENGTH, tsf ▲ Qu * Qp		
	0			1	16	6 inches of black clayey TOPSOIL FILL: brown to black silty CLAY, trace wood, sand, and gravel	FILL		5/6/8 N=14	15			
	5			2	14	Brown silty CLAY, trace sand and gravel, stiff to very stiff	CL	4.5	5/8/8 N=16	15			>>*
				3	16		CL	4.5	10/12/12 N=24	16			>>*
	10			4	16		CL	4.5	5/6/8 N=14	16			>>*
	15			5	16	Gray silty CLAY, trace sand gravel, stiff to very stiff	CL	2.0	10/10/10 N=20	17			
	20			6	18	END OF BORING AT 20 FEET No groundwater was observed to collect during the drilling operations.	CL	2.5	7/12/17 N=29	18			

Completion Depth: 20.0 ft  
Date Boring Started: 12/13/05  
Driller: MS  
Assistant Driller: JLU

## Sample Types:

Auger Cutting  
Split-Spoon

Shelby Tube  
Hand Auger

Remarks:

001065



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## LOG OF BORING B-4

Sheet 1 of 1

PSI Job No.: 042-55077

Project: Lot 2 Oakhurst Drive

Location: Oakhurst Drive to south of New York St.

Aurora, Illinois

Client: Partners in Development

Drilling Method: 2.25" Hollow Stem Augers

Sampling Method: Split-Spoon Sampling

Hammer Type: Hydraulic

Drill Rig Type: Mobil Drill

Backfill Method: Auger Cuttings

## WATER LEVELS

▽ During Drilling 19.5 ft

▽ At Completion ft

▽ After 24 Hours ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	Hand Penetrometer Qp (tsf)	SPT Blows per 6-Inch N-values	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft © × Moisture    □ PL + LL			Additional Remarks
						Surface Elev.:      ft Existing Surface					STRENGTH, tsf ▲ Qu      * Qp			
	0			1	16	6 inches of black clayey TOPSOIL FILL: brown to black silty CLAY, trace sand, and gravel	FILL		11/14/11 N=25	15	×	⊙		
				2	18	Brown silty CLAY, trace sand and gravel, stiff to very stiff	CL	4.5	6/8/9 N=17	16	×	⊙	>>*	
	5			3	18		CL	4.5	8/11/13 N=24	17	×	⊙	>>*	
				4	18		CL	4.5	8/12/14 N=26	17	×	⊙	>>*	
	10													
				5	3	Gray silty CLAY, trace sand gravel, medium stiff to stiff	CL		8/7/7 N=14	16	×	⊙		
	15													
				6	16		CL	2.0	4/4/5 N=9	17	⊙	×	*	
	20					END OF BORING AT 20 FEET								

Completion Depth: 20.0 ft

Date Boring Started: 12/13/05

Driller: MS

Assistant Driller: JU

## Sample Types:

Auger Cutting

Split-Spoon

Shelby Tube

Hand Auger

Remarks:

001066





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## LOG OF BORING B-5

Sheet 1 of 1

PSI Job No.: 042-55077  
Project: Lot 2 Oakhurst Drive  
Location: Oakhurst Drive to south of New York St.  
Aurora, Illinois  
Client: Partners in Development

Drilling Method: 2.25" Hollow Stem Augers  
Sampling Method: Split-Spoon Sampling  
Hammer Type: Hydraulic  
Drill Rig Type: Mobil Drill  
Backfill Method: Auger Cuttings

## WATER LEVELS

▽ During Drilling ft  
▽ At Completion ft  
▽ After 24 Hours ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	Hand Penetrometer Qp (tsf)	SPT Blows per 6-Inch N-values	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft @		Additional Remarks
											Moisture	Strength	
	0					Surface Elev.: ft Existing Surface							
	0			1	16	8 inches of black clayey TOPSOIL FILL: brown to black silty CLAY, trace wood, sand, and gravel	FILL		8/9/15 N=24	16			
	5			2	16		FILL		5/6/6 N=12	16			
	5			3	16	Brown silty CLAY, trace sand and gravel, stiff to very stiff	CL	2.5	4/7/7 N=14	17		*	
	10			4	18		CL	4.5	8/11/12 N=23	18		>>*	
	15			5	18	Gray silty CLAY, trace sand gravel, stiff to very stiff	CL	4.5	11/12/14 N=26	16		>>*	
	20				3	END OF BORING AT 19 FEET DUE TO BOULDER REFUSAL No groundwater was observed to collect during the drilling operations.	CL	1.5		18		*	

Completion Depth: 20.0 ft  
Date Boring Started: 12/13/05  
Driller: MS  
Assistant Driller: JU

## Sample Types:

☐ Auger Cutting  
☒ Split-Spoon

☐ Shelby Tube  
☐ Hand Auger

Remarks:

001067



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## LOG OF BORING B-6

Sheet 1 of 1

PSI Job No.: 042-55077  
Project: Lot 2 Oakhurst Drive  
Location: Oakhurst Drive to south of New York St.  
Aurora, Illinois  
Client: Partners in Development

Drilling Method: 2.25" Hollow Stem Augers  
Sampling Method: Split-Spoon Sampling  
Hammer Type: Hydraulic  
Drill Rig Type: Mobil Drill  
Backfill Method: Auger Cuttings

## WATER LEVELS

▽ During Drilling ft  
▽ At Completion ft  
▽ After 24 Hours ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	Hand Penetrometer Qp (tsf)	SPT Blows per 6-inch N-values	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft @		Additional Remarks
											Moisture	Strength	
	0					Surface Elev.: ft Existing Surface					1 25 50 0 2.0 4.0 Qu Qp		
						12 inches of black clayey TOPSOIL							
				1	14	FILL: brown to black silty CLAY, trace sand and gravel	FILL		8/12/14 N=26	16	×	⊙	
				2	16		FILL		5/6/6 N=12	17	×	⊙	
	5			3	18	Brown silty CLAY, trace sand and gravel, stiff to very stiff	CL	4.0	4/5/7 N=12	18	×	⊙	*
				4	18		CL	4.5	6/9/11 N=20	16	×	⊙	>>*
	10			5	18		CL	4.5	7/11/12 N=23	16	×	⊙	>>*
	15			6	18		CL	4.5	5/11/12 N=23	17	×	⊙	>>*
	20					END OF BORING AT 20 FEET No groundwater was observed to collect during the drilling operations.							

Completion Depth: 20.0 ft  
Date Boring Started: 12/13/05  
Driller: MS  
Assistant Driller: .III

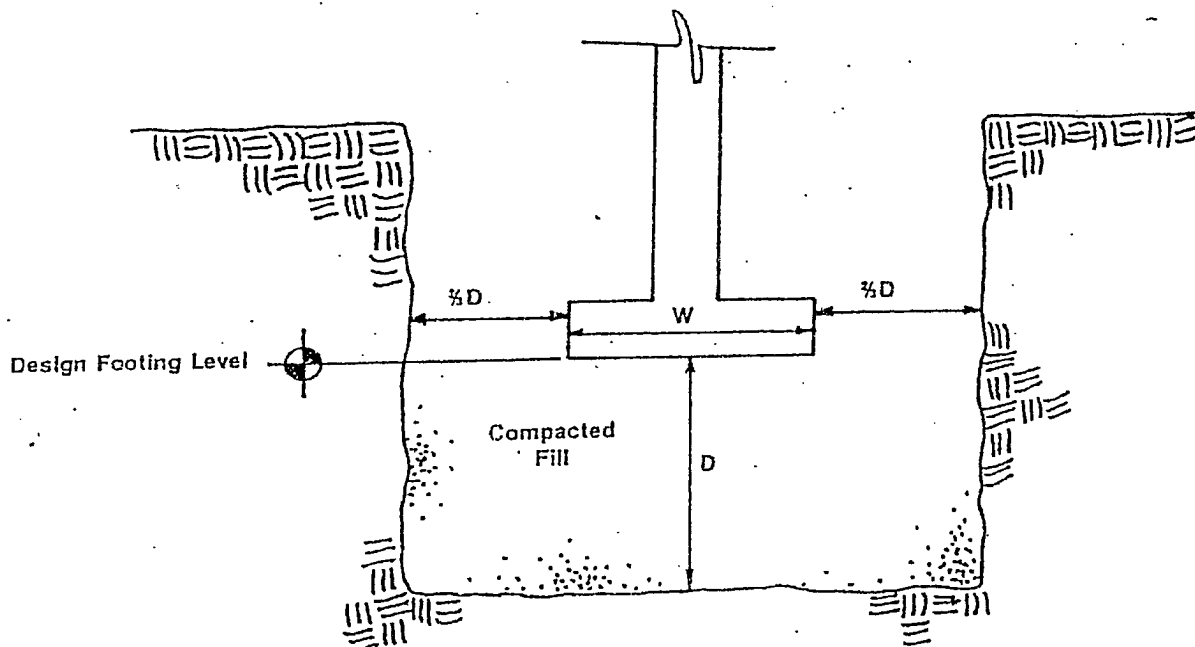
Sample Types:  
 Auger Cutting  
 Split-Spoon  
 Shelby Tube  
 Hand Auger

Remarks:

001068



## OVEREXCAVATION AND BACKFILL PROCEDURE



Where unsuitable bearing material is encountered below design footing level, overexcavate as shown above.

Unless otherwise noted in report, minimum depth  $D = W$  for continuous footings and minimum depth  $D = \frac{1}{2}W$  for isolated footings.

Place fill below footing level in 9 inch loose lifts. See report for type of fill and degree of compaction.

# STORMWATER CALCULATIONS

Prepared for:

Gemini Office Development  
240 North Oakhurst Drive  
Aurora, Illinois

Prepared By:



eCivil.com

5100 Lincoln Avenue  
Lisle, Illinois 60532

MEI Project No. 06-PR-5004  
November 28, 2006

001070

# STORMWATER CALCULATIONS

Prepared for:

Gemini Office Development  
240 North Oakhurst Drive  
Aurora, Illinois

Prepared By:



eCivil.com

5100 Lincoln Avenue, Suite 100  
Lisle, Illinois 60532

MEI Project No. 06-PR-5004  
November 28, 2006

## PROFESSIONAL ENGINEER CERTIFICATION

STATE OF ILLINOIS)

SS.

COUNTY OF DuPAGE)

I, SIGITAS P. VAZNELIS, A REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS, HEREBY CERTIFY THAT THIS APPLICATION WAS PREPARED ON BEHALF OF GEMINI OFFICE DEVELOPMENT BY MORRIS ENGINEERING, INC. 5100 LINCOLN AVENUE, LISLE, IL, 60532 UNDER MY PERSONAL DIRECTION. THIS TECHNICAL SUBMISSION IS INTENDED TO BE USED AS AN INTEGRAL PART OF AND IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS.



DATED THIS 04 DAY OF December, A.D., 20 06

  
ILLINOIS REGISTERED PROFESSIONAL ENGINEER NO. 062-044114

MY REGISTRATION EXPIRES ON NOVEMBER 30, 2007.

NOTE: UNLESS THIS DOCUMENT BEARS THE ORIGINAL SIGNATURE AND IMPRESSED SEAL OF THE DESIGN PROFESSIONAL ENGINEER, IT IS NOT A VALID TECHNICAL SUBMISSION.

001071

**TAB 1**

**PROJECT OVERVIEW**

001072

**SOIL EROSION AND SEDIMENT CONTROL PLAN NARRATIVE**  
**GEMINI OUTPATIENT FACILITY**  
Oakhurst drive, Aurora Illinois

**PROJECT DESCRIPTION**

The 3.24-acre site is part of a commercial subdivision that was permitted previously with the City of Aurora and includes a Dominick's facility to the west, as well as a detention facility partially within this parcel. This detention facility has been sized to include the runoff from this parcel. The future development consists of a 21,750 s.f. medical office building with 72 parking spaces. All storm drainage is to the existing detention pond. All utilities are connecting to stubs provided by the overall site redeveloper.

**EXISTING CONDITIONS**

The parcel has had several feet of fill placed over the last several years and is mostly mowed grassy area.

**ADJACENT AREAS**

Areas to the west of the proposed development includes the Dominick's facility and the existing detention pond. Access to the site is off Oakhurst Drive on an existing road that feeds to the rear of the existing Dominick's facility.

**OFF-SITE AREAS**

No offsite areas will be affected in the proposed development

**CRITICAL AREAS**

No determined critical areas will be affected in the proposed development.

**SOIL EROSION AND SEDIMENT CONTROL MEASURES**

***SILT FENCE***

The West and South portion of the proposed development will be enclosed with Silt Fence. Details and specifications shall conform with the NRCS (Natural Resources Conservation Service).

***FILTER FABRIC***

Riprap areas will be installed with applicable filter fabric size as specified in the details and specifications with the NRCS detail included in the Soil and Erosion Control plans submitted herewith.

### ***GEOTEXTILES FOR STRUCTURES***

All proposed structures shall be placed with geotextile fabric and anchored in place with the frame and grate.

### **PERMANENT STABILIZATION**

Permanent stabilization control measures shall include seeding of all slopes and landscaping. Permanent erosion control measures shall be installed as soon as reasonable, following construction activities.

Permanent erosion control measures shall be monitored and maintained by the Owner. These measures shall be inspected monthly. Any deficiencies shall be corrected.

### **CALCULATIONS**

No calculations are required for this specific proposed development because the detention ponds where the site will drain to has been previously approved by the City of Aurora.

### **DETAIL DRAWINGS**

Detail drawings will be included in the *SOIL AND EROSION CONTROL PLAN* submitted herewith with this narrative.

### **MAINTENANCE**

Planned maintenance tasks will be performed bi-monthly unless indicated during the growing season. ( March 1- October 31). The Owner shall be responsible for these planned tasks.



**TAB 2**

**STORMWATER SUBMITTAL**

001075

**TAB 2 - TRIBUTARY FLOW TO POND CALCULATIONS**

GEMINI OFFICE DEVELOPMENT  
MEI Project No. 06-PR-5004

Area (Property) = 3.24 AC

Impervious Area

Building	=	0.50
Pavement	=	0.69
Sidewalk	=	0.07
Driveway	=	0.10
		<u>1.36 AC</u>

Pervious = 3.24 - 1.36 = 1.88 AC

Composite C

Grass	1.88	x	0.20	=	0.376
Pavement	0.86	x	0.95	=	0.817
Commercial	0.50	x	0.80	=	0.400
					<u>1.593</u>

$$C = \frac{1.593}{3.24}$$

$$= 0.49$$

L = 400'

S = 2.25%

t = 22 minutes

I = 3.38 in/hr (5-year)  
3.86 in/hr (10-year)  
5.6 in/hr (100-year)

Q = CIA

$$= 0.49 \times 5.6 \times 3.24$$

$$= 8.89 \text{ CFS}$$

001076

**Cross Section for Circular Pipe - 1****Project Description**

Friction Method

Manning Formula

Solve For

Discharge

**Input Data**

Roughness Coefficient

0.013

Channel Slope

0.01323 ft/ft

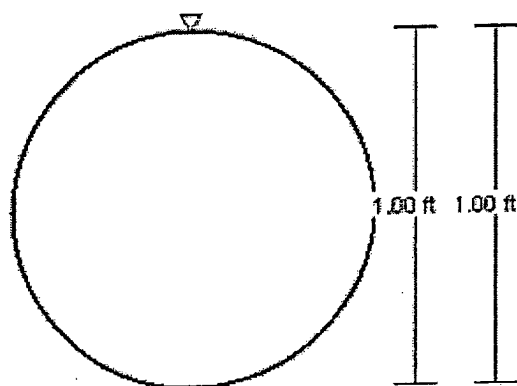
Normal Depth

1.00 ft

Diameter

1.00 ft

Discharge

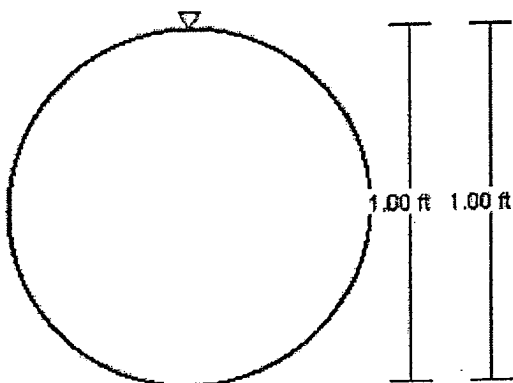
4.10 ft<sup>3</sup>/s**Cross Section Image**V: 1  
H: 1


**Cross Section for Circular Pipe - 1****Project Description**

Friction Method                      Manning Formula  
Solve For                                Discharge

**Input Data**

Roughness Coefficient	0.013
Channel Slope	0.01323 ft/ft
Normal Depth	1.00 ft
Diameter	1.00 ft
Discharge	4.10 ft <sup>3</sup> /s

**Cross Section Image**

V: 1   
H: 1

001078

**Cross Section for Section A-A****Project Description**

Friction Method

Manning Formula

Solve For

Discharge

**Input Data**

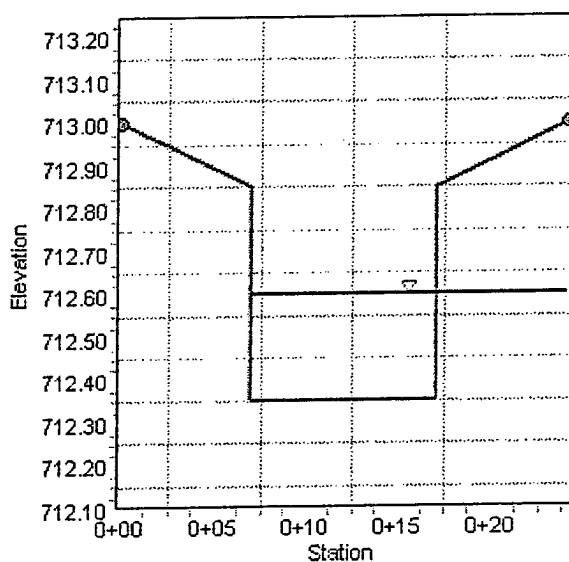
Channel Slope

0.00800 ft/ft

Normal Depth

0.25 ft

Discharge

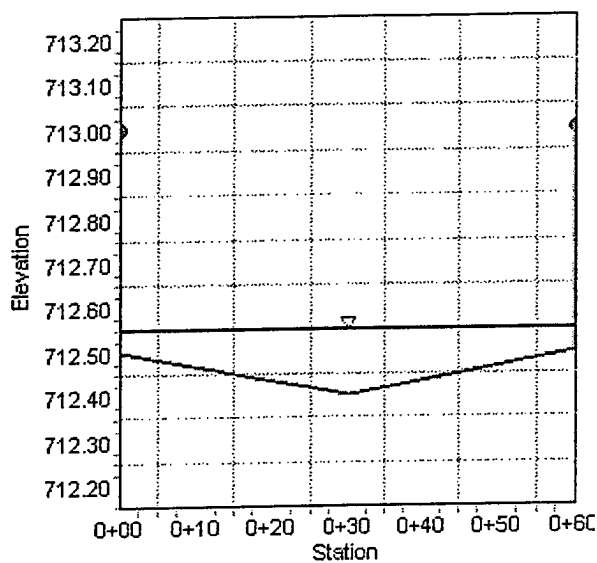
10.64 ft<sup>3</sup>/s**Cross Section Image**

**Cross Section for Section B-B****Project Description**

Friction Method                      Manning Formula  
Solve For                                Discharge

**Input Data**

Channel Slope                              0.01300    ft/ft  
Normal Depth                                0.15        ft  
Discharge                                    16.83      ft<sup>3</sup>/s

**Cross Section Image**

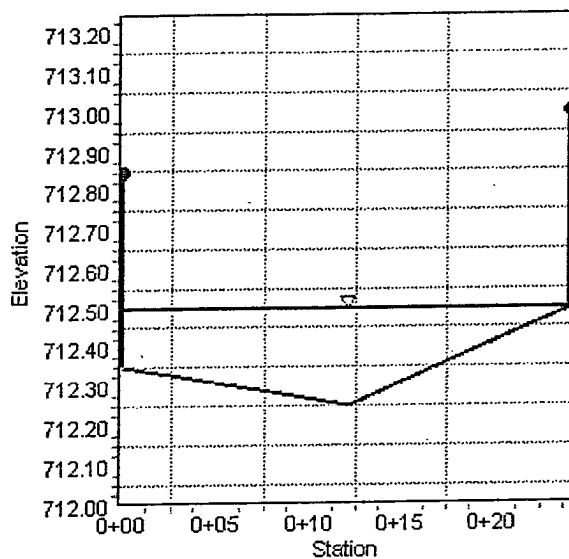


**Cross Section for Section C-C****Project Description**

Friction Method                      Manning Formula  
Solve For                                Normal Depth

**Input Data**

Channel Slope	0.00560	ft/ft
Normal Depth	0.25	ft
Discharge	10.22	ft <sup>3</sup> /s

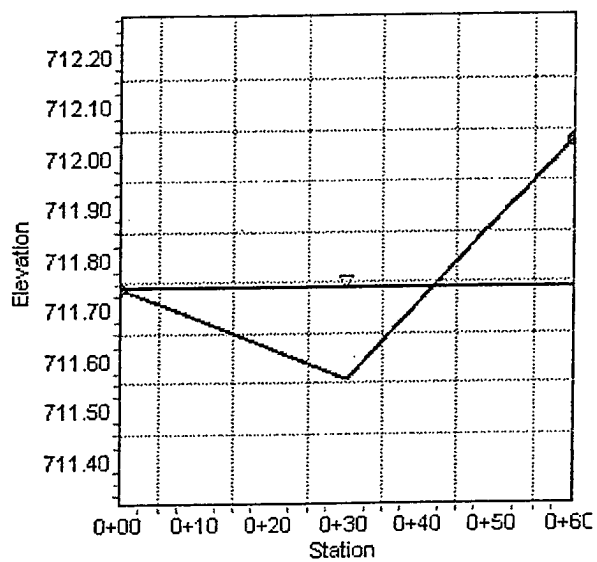
**Cross Section Image**

**Cross Section for Section D-D****Project Description**

Friction Method                      Manning Formula  
Solve For                                Normal Depth

**Input Data**

Channel Slope	0.02000	ft/ft
Normal Depth	0.18	ft
Discharge	12.82	ft <sup>3</sup> /s

**Cross Section Image**

**Cross Section for Section E-E****Project Description**

Friction Method

Manning Formula

Solve For

Normal Depth

**Input Data**

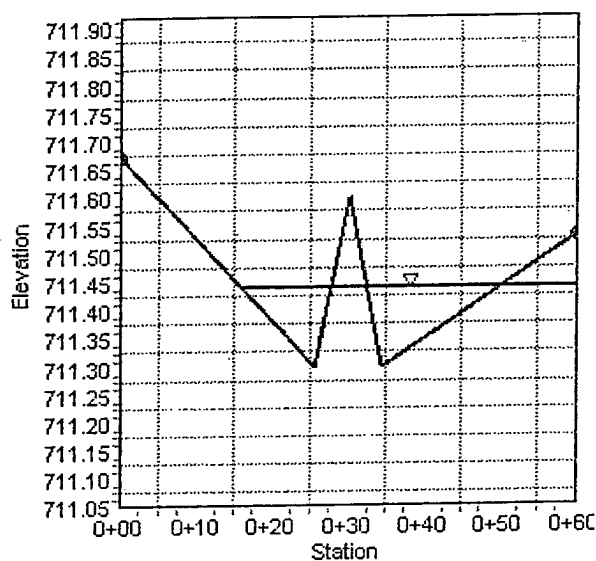
Channel Slope

0.02000 ft/ft

Normal Depth

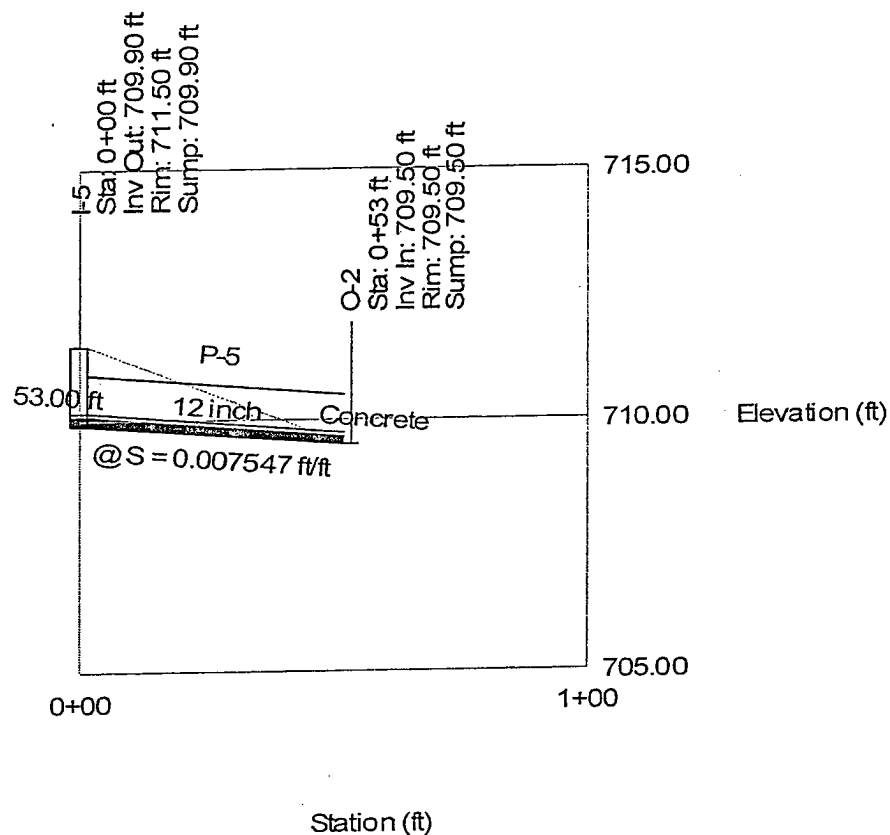
0.14 ft

Discharge

5.70 ft<sup>3</sup>/s**Cross Section Image**

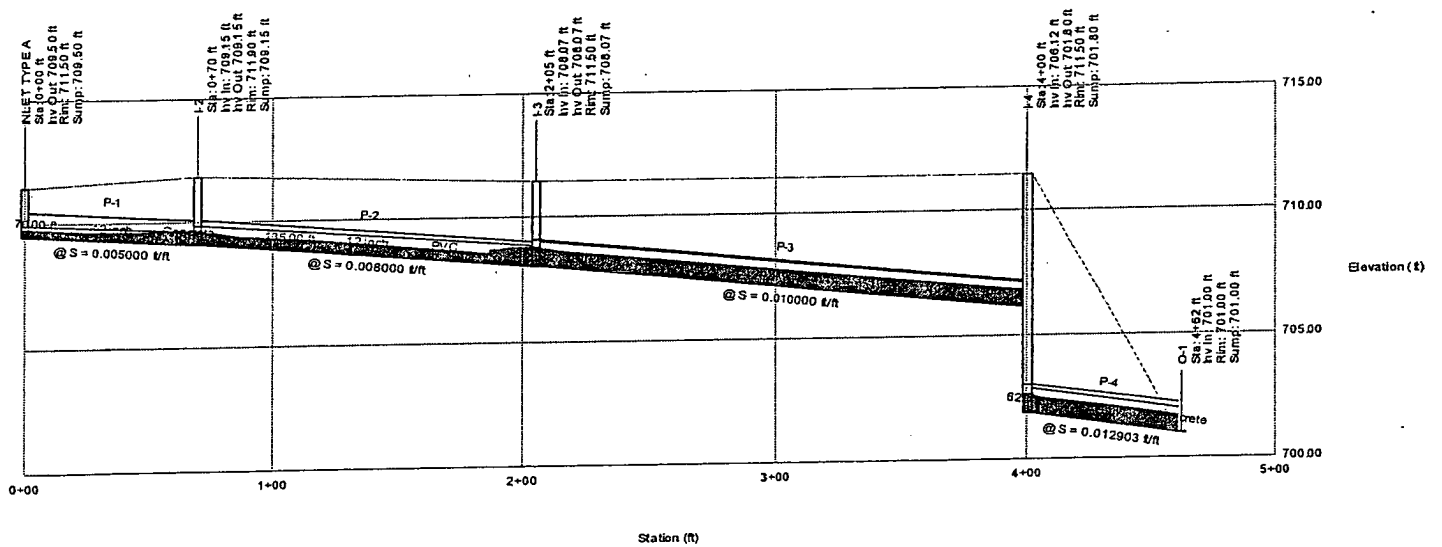
**Profile**  
**Scenario: Base**

**Profile: STORM RUN 2 - GEMINI OFFICE DEVELOPMENT**  
**Scenario: Base**



Profile  
Scenario: Base

Profile: STORM RUN 1 - GEMINI OFFICE DEVELOPMENT  
Scenario: Base



## Scenario: Base

## Combined Pipe\Node Report

Label	Upstream Node	Downstream Node	Length (ft)	Upstream Inlet Area (acres)	Upstream Inlet Rational Coefficient	Upstream Inlet CA (acres)	Upstream Calculated System CA (acres)	Upstream Inlet Rational Flow (cfs)	Section Size	Full Capacity (cfs)	Average Velocity (ft/s)	Upstream Invert Elevation (ft)
P-1	INLET TYPE	I-2	70.00	0.27	0.46	0.12	0.12	0.56	12 inch	2.52	2.58	709.50
P-2	I-2	I-3	135.00	0.41	0.46	0.19	0.31	0.85	12 inch	4.14	4.77	709.15
P-3	I-3	I-4	195.00	0.68	0.46	0.31	0.63	1.41	12 inch	3.56	5.03	708.07
P-4	I-4	O-1	62.00	0.19	0.46	0.09	0.71	0.39	12 inch	4.05	5.72	701.80
P-5	I-5	O-2	53.00	0.10	0.46	0.05	0.05	0.21	12 inch	3.09	2.24	709.90



## Scenario: Base

## Combined Pipe\Node Report

Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	Description
709.15	0.005000	
708.07	0.008000	
706.12	0.010000	
701.00	0.012903	
709.50	0.007547	

## TAB 2 - STORMWATER SUBMITTAL - IDENTIFIER 2E

## GEMINI OFFICE DEVELOPMENT

Proj: 06-PR-5004

## SUPPLEMENTARY CALCULATION

10 YEAR STORM RETURN ( SEE ATTACHED STORM CAD CALCULATION)

Pervious	2	acres
Impervious	<u>1.24</u>	acres
TOTAL AREA	3.24	acres

## COMPOSITE C

DESCRIPTION	A	C	AxC
Pavement	0.74	0.95	0.703
Commercial	0.5	0.8	0.4
Grass	<u>2</u>	0.2	<u>0.4</u>
	3.24		1.503

$$\text{COMPOSITE C} = \frac{1.503}{3.24} = 0.46$$

**TAB 3**  
**FLOODPLAIN SUBMITTAL**

001089

**TAB 4**

**WETLAND SUBMITTAL**

001090